FlexiDomeHD 1080p IP Camera

NDN-832

BOSCH

Table of Contents

1   Safety

1.1   Safety precautions

DANGER!
High risk: This symbol indicates an imminently hazardous situation such as "Dangerous Voltage" inside the product.
If not avoided, this will result in an electrical shock, serious bodily injury, or death.

WARNING!
Medium risk: Indicates a potentially hazardous situation.
If not avoided, this could result in minor or moderate bodily injury.

CAUTION!
Low risk: Indicates a potentially hazardous situation.
If not avoided, this could result in property damage or risk of damage to the unit.

CAUTION!
The Low Voltage power supply unit must comply with EN/UL 60950. The power supply must be a SELV-LPS unit or a SELV - Class 2 unit (Safety Extra Low Voltage - Limited Power Source).

CAUTION!
The camera must be connected to earth.

1.2   Important safety instructions

Read, follow, and retain for future reference all of the following safety instructions. Follow all warnings on the unit and in the operating instructions before operating the unit.

1.   Clean only with a dry cloth. Do not use liquid cleaners or aerosol cleaners.
2.   Do not install unit near any heat sources such as radiators, heaters, stoves, or other equipment that produce heat. Avoid exposure to direct sunlight for long periods.
3.   Never spill liquid of any kind on the unit.
4.   Take precautions to protect the unit from power and lightning surges.
5.   Adjust only those controls specified in the operating instructions.
6.   Operate the unit only from the type of power source indicated on the label.
7.   Unless qualified, do not attempt to service a damaged unit yourself. Refer all servicing to qualified service personnel.
8.   Install in accordance with the manufacturer's instructions in accordance with applicable local codes. Use only attachments/accessories specified by the manufacturer. Equipment change or modification could void the user's guarantee or authorization agreement.
9.   Connect the yellow/green earth wire of the camera to the system earth of the installation to ensure correct safety and EMC/RFI protection.

1.3 Connection in applications

Grounding

The yellow/green safety (power) ground wire from the camera must be connected to the system earth of the installation. U.S.A.: - section 810 of the National Electrical Code, ANSI/NFPA No.70, provides information regarding proper grounding.

12 VDC / 24 VAC power source: This unit is intended to operate with a limited power source. The unit is intended to operate at either 12 VDC or 24 VAC (if PoE is not available). User supplied wiring must be in compliance with electrical codes (Class 2 power levels).

PoE: Use only approved PoE devices. Power-over-Ethernet can be connected at the same time as a 12 VDC or 24 VAC power supply.

If auxiliary power (12 VDC or 24 VAC) and PoE is applied simultaneously, the camera selects auxiliary input and shuts off the PoE.

1.4 Type label

The type label is located on the rear of the camera module.

1.5   FCC & ICES compliance

FCC & ICES Information

This equipment has been tested and found to comply with the limits for a **Class B** digital device, pursuant to *part 15* of the *FCC Rules*. These limits are designed to provide reasonable protection against harmful interference in a **residential installation**. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

–   reorient or relocate the receiving antenna;
–   increase the separation between the equipment and receiver;
–   connect the equipment into an outlet on a circuit different from that to which the receiver is connected;
–   consult the dealer or an experienced radio/TV technician for help.

Intentional or unintentional modifications, not expressly approved by the party responsible for compliance, shall not be made. Any such modifications could void the user's authority to operate the equipment. If necessary, the user should consult the dealer or an experienced radio/television technician for corrective action.

The user may find the following booklet, prepared by the Federal Communications Commission, helpful: "How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

1.6   MicroSD cards

Bosch Security systems recommends that local storage on microSD card should only be used for alarm recording and Automatic Network Replenishment (ANR) applications. To minimize the risk of lost of digital information, we recommend multiple, redundant recording systems, and a procedure to back up all digital information.

1.7   UL certification

Disclaimer

Underwriter Laboratories Inc. ("UL") has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested fire, shock and/or casualty hazards as outlined in UL's *Standard(s) for Safety for Information Technology Equipment, UL 60950-1*. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.

UL MAKES NO REPRESENTATIONS, WARRANTIES, OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING RELATED FUNCTIONS OF THIS PRODUCT.

	Disposal - Your Bosch product was developed and manufactured with high-quality material and components that can be recycled and reused. This symbol means that electronic and electrical appliances, which have reached the end of their working life, must be collected and disposed of separately from household waste material. Separate collecting systems are usually in place for disused electronic and electrical products. Please dispose of these units at an environmentally compatible recycling facility, per *European Directive 2002/96/EC*

1.8   Bosch notices

Video loss

Video loss is inherent to digital video recording; therefore, Bosch Security Systems cannot be held liable for any damage that results from missing video information. To minimize the risk of lost digital information, Bosch Security Systems recommends multiple, redundant recording systems, and a procedure to back up all analog and digital information.

Optical elements

Optical elements are sensitive and should be protected at all times. Do not allow objects to come into contact with glass surfaces and do not touch optical elements with your fingers.

Copyright

This manual is the intellectual property of Bosch Security Systems and is protected by copyright.
All rights reserved.

Trademarks

All hardware and software product names used in this document are likely to be registered trademarks and must be treated accordingly.

Note

This manual has been compiled with great care and the information it contains has been thoroughly verified. The text was complete and correct at the time of printing. The ongoing development of the products may mean that the content of the user guide can change without notice. Bosch Security Systems accepts no liability for damage resulting directly or indirectly from faults, incompleteness or discrepancies between the user guide and the product described.

More information

For more information please contact the nearest Bosch Security Systems location or visit *www.boschsecurity.com*

1.9   Copyrights

The firmware uses the fonts "Adobe-Helvetica-Bold-R-Normal--24-240-75-75-P-138-ISO10646-1" and "Adobe-Helvetica-Bold-R-Normal--12-120-75-75-P-70-ISO10646-1" under the following copyright:
Copyright 1984-1989, 1994 Adobe Systems Incorporated.
Copyright 1988, 1994 Digital Equipment Corporation.
Permission to use, copy, modify, distribute and sell this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notices appear in all copies and that both those copyright notices and this permission notice appear in supporting documentation, and that the names of Adobe Systems and Digital Equipment Corporation not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission.

This software is based in part on the work of the Independent JPEG Group.

2   Introduction

2.1   Features

The FlexiDomeHD 1080p IP Day/Night camera is a high-performance, surveillance color camera.

The camera uses H.264 compression technology to give clear images while reducing bandwidth and storage requirements. It is also ONVIF compliant to improve compatibility during system integration. The camera operates as a network video server and transmits video and control signals over data networks, such as Ethernet LANs and the Internet. The camera is easy to install and ready to use. Features include:

– Progressive scan 1/2.7-inch CMOS HD sensor
– True Day/Night performance with switchable IR filter
– Automatic motorized back focus adjustment
– Quad-streaming
– MicroSD card slot
– ONVIF conformant
– Two-way audio and audio alarm
– Alarm input and alarm output to external devices
– Adaptive dynamic noise reduction
– Enhanced video motion detection
– Video and data transmission over IP data networks
– Multicast function
– Integrated Ethernet interface (10/100 Base-T)
– Power-over-Ethernet (PoE)
– Password protection
– Integrated Web server for live viewing and configuration via a browser
– Firmware update through flash memory

3 System Information

3.1 Overview of functions

The camera incorporates a network video server. Its primary function is to encode video and control data for transmission over an IP network. With its H.264 encoding, it is ideally suited for IP communication and for remote access to digital video recorders and IP systems. The use of existing networks means that integration with CCTV systems or local networks can be achieved quickly and easily. Video images from a single camera can be simultaneously received on several receivers.

3.1.1 Progressive scan

The camera captures and processes progressively scanned images. When there is fast motion in a scene, progressively scanned images are generally sharper than interlaced images.

3.1.2 Day/Night function

In night mode, the camera enhances low light viewing by switching the IR (infrared) filter out of the optical path and providing a monochrome image. The camera can switch from color to monochrome mode automatically by sensing the illumination level, manually via the alarm input, or remotely via a web browser.

3.1.3 Quad-streaming

Quad-streaming enables the camera to deliver three H.264 streams (a HD stream, a downscaled resolution stream, and a HD I-frame only stream) together with an M-JPEG stream. These four streams facilitate bandwidth-efficient viewing and recording options as well as integration with third-party video management systems.

3.1.4 ONVIF (Open Network Video Interface Forum)

The camera complies to the ONVIF standard which means that it is easier to install and integrate into larger systems. The

ONVIF standard is a global standard for the interface of network video products.

3.1.5 Audio

Two-way duplex audio is available in the unit for live voice communications or audio recording.

3.1.6 Alarm I/O

The alarm input can be used to control the functionality of the unit. An alarm output can control external devices.

3.1.7 Tamper detection and motion detection

The camera offers a wide range of configuration options for alarm signaling in the event of tampering with the camera. A Motion+ algorithm for detecting movement in the video image is included.

3.1.8 Video encoding

The camera uses the H.264 compression standards. Thanks to efficient encoding, the data rate remains low even with high image quality and can also be adapted to local conditions within wide limits.

3.1.9 Multicast

In suitably configured networks, the multicast function enables simultaneous, real time transmission to multiple receivers. The prerequisite for this is that the UDP and IGMP V2/V3 protocols are implemented on the network.

3.1.10 Power-over-Ethernet

Power for the camera can be supplied via a Power-over-Ethernet compliant network cable connection. With this configuration, only a single cable connection is required to view, power, and control the camera.

3.1.11 Data interface

An external communications port with RS485/RS422/RS232 is available to provide data to external devices, such as pan and tilt heads, for full PTZ control via the Ethernet interface.

3.1.12 Encryption

The unit offers a variety of options for protection against unauthorized reading. Web browser connections can be protected using HTTPS. Protect the control channels via the SSL encryption protocol. With an additional license, the user data itself can be encrypted.

3.1.13 Recording

The camera can be used with an iSCSI server connected via the network to store long-term recordings, and with a local microSD card for shorter storage times and temporary recordings.

3.1.14 Configuration

The camera can be configured using a browser on the local network (Intranet) or from the Internet. Similarly, firmware updates and rapid loading of device configurations are also possible. Configuration settings can be stored as files on a computer and copied from one camera to another.

3.2   Operation with external systems

The camera can be used with a variety of Bosch systems:
–   Bosch Video Management System
–   Bosch Video Client
–   Bosch Recording Station

When connected to any of these systems, many of the camera configuration parameters are controlled by the system and not by the settings made via a web browser.

Bosch Video Management System

The Bosch Video Management System is a unique enterprise IP video surveillance solution that provides seamless management of digital video, audio, and data across any IP network. It is designed to work with Bosch CCTV products as part of a total video surveillance management system.

Bosch Video Client

The camera video server and the Bosch Video Client software combine to provide a high-performance system solution. The Bosch Video Client is a Windows application for viewing, operating, controlling, and administering CCTV installations (such as surveillance systems) at remote locations.

Bosch Recording Station

The camera is also designed for use with the Bosch Recording Station. The Bosch Recording Station can record up to 32 video and audio streams. The Bosch Recording Station supports various functions of the camera, such as controlling relays, remote control of peripheral devices, and remote configuration. It can use alarm inputs to trigger actions and, when motion detection **Motion+** is active, can record the relevant cells, making intelligent motion detection possible.

4　Planning

4.1　Unpacking

Unpack carefully and handle the equipment with care. The packaging contains:

– FlexiDomeHD 1080p IP camera
– Torx screwdriver bit
– Camera mounting kit
– RJ45 female-to-female network cable connector
– Optical disk
  – Manuals
  – Bosch Video Client
– Quick install instructions and safety instructions

If equipment has been damaged during shipment, repack it in the original packaging and notify the shipping agent or supplier.

4.2　System requirements

– Computer with Windows XP/Vista/7 operating system, network access, and Microsoft Internet Explorer web browser version 7.0 or later
  -or-
– Computer with network access and reception software, for example Bosch Video Client, Bosch Video Management System, or Bosch Recording Station
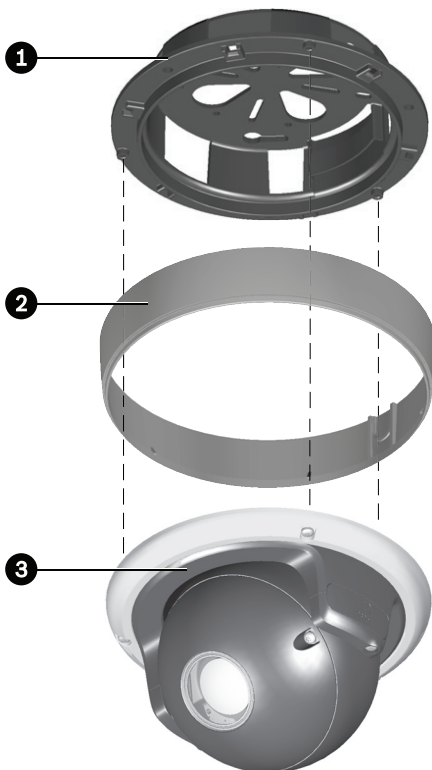
5   Installation

⚠️ **CAUTION!**
Installation should only be performed by qualified service personnel in accordance with the National Electrical Code or applicable local codes.

5.1   Parts

The camera/housing unit consists of the following parts:

1.   Mounting base
2.   Surface mount ring
3.   Camera module with fixing ring

5.2 Mounting the unit

5.2.1 Surface mounting
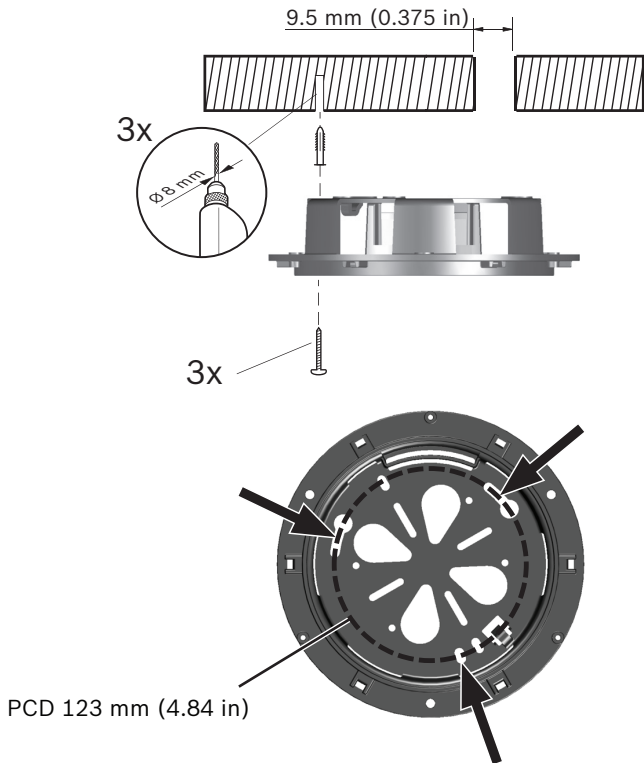
Figure?5.1?Surface mounting

To mount the camera on the surface of a wall or ceiling:

1. Use the mounting base as a template to mark the holes indicated in the drawing. The PCD is 123 mm (4.84 in).
2. Drill three holes with a diameter of 8 mm (0.3 in).
3. Insert the supplied plugs into the holes.
4. Attach the mounting base securely to the surface using the three supplied screws.

5. Place the surface mount ring over the cable tree.
6. Suspend the camera module from the plastic hook inside the mounting base ensuring that the suspension cable is seated securely in the groove.

5.2.2 Flush mount
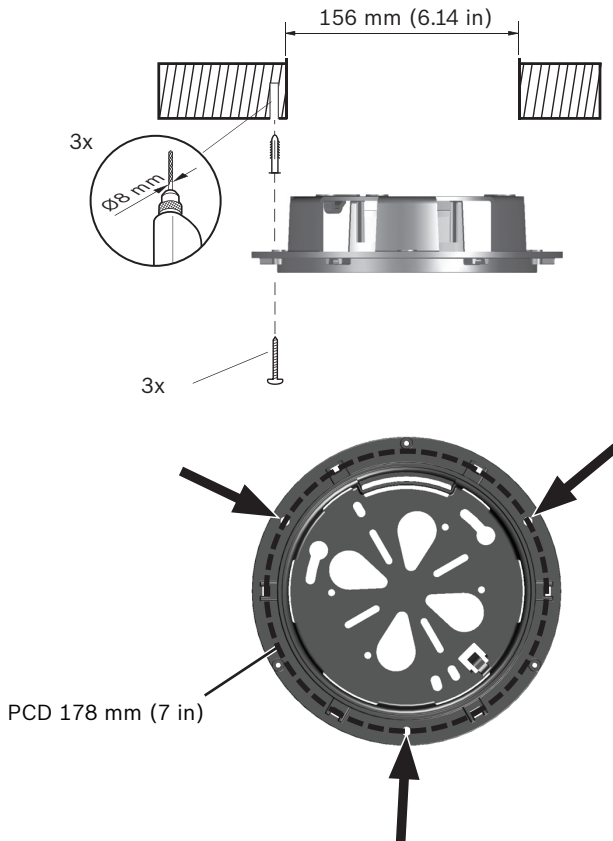
Figure?5.2?Flush mounting

To flush mount the camera in a wall or ceiling:

1. Use the mounting base as a template to mark out the recess and to mark the holes indicated in the drawing. The PCD is 178 mm (7 in)
2. Cut out the recess.
3. Drill three holes with a diameter of 8 mm (0.3 in).
4. Insert the supplied plugs into the holes.
5. Attach the mounting base securely using the three supplied screws.

6.   Suspend the camera module from the plastic hook inside the mounting base.

5.3 Connections

5.3.1 Make the connections

The unit has connection terminals on flying leads. In wet or outdoor installations make use of a field wiring box with NEMA Type 4X or IP66 protection level or better. Make the connections inside a water tight compartment. After connections are made ensure that the watertight compartment is tightly closed and cables and conduits are properly sealed to prevent ingress of water.

Cable tree

Use the following table to identify the wires in the cable tree:

Wire color	AWG	Signal
Red	26	+12 VDC / 24 VAC
Brown	26	-12 VDC / 24 VAC
Yellow / Green	24	Earth ⏚
Black / Orange	28	Alarm Out A
White / Orange	28	Alarm Out B
White / Violet	28	Ground (Alarm In + Data)
Orange / Violet	28	Alarm In 1
Violet	28	Alarm In 2
White	28	Audio In
(Shield)	28	Ground (Audio In)
Black	28	Audio Out
(Shield)	28	Ground (Audio Out)
Blue	28	Data CTS (Rx-)
Blue / White	28	Data RTS (Tx+)
Grey	28	Data RXD (Rx+)
Grey / White	28	Data TXD (Tx-)

Note:

For connections use wires of at least the same thickness.

CAUTION!
Check the type label on the rear of the camera module for the correct power ratings.

Power connection
1. Use a class 2 power supply 24 VAC or +12 VDC.
2. Connect the power wires (red+ , brown-) to the power supply.
3. Connect the earth wire (yellow/green) from the camera to the system earth of the installation to ensure correct EMC/RFI and safety protection.

Network (and PoE) connection
1. Use a shielded twisted pair (STP) Category 5e cable, maximum length 100 meters.
2. Use the RJ45 female-to-female network cable connector to connect the network cable of the system to the RJ45 connector of the camera (Auto MDIX compliant - automatically detects the cable connection type).

Power is supplied to the camera via the Ethernet cable, compliant with the Power-over-Ethernet standard.

Note:
The RJ45 female-to-female network cable connector supplied is unshielded.
To comply with the EMC Alarm immunity standard (EN50130-4) or the EMC Railway immunity standard (EN50121-4), a shielded twisted pair (STP) connection cable and a shielded RJ45 female-to-female network cable connector (not supplied) should be used.

Alarm Input
Use the alarm input to connect external alarm devices such as door contacts or sensors. A zero potential make or break

contact can be used as the actuator (use a bounce-free contact system).

– Refer to the cable tree table to identify the wire colors for connecting the alarm input.
– Configurable as active low or active high.

Alarm output
Use the alarm relay output for switching external devices such as lamps or sirens.

– Refer to the cable tree table to identify the wire colors for connecting the alarm output.
– In the menu system, configure the relay output to operate as either normally open (NO) or normally closed (NC).

Audio in / Audio out
The unit has full-duplex mono audio. The two-way communication can be used to connect a speaker or door intercom system. The audio input signal is transmitted in sync. with the video signal.
Refer to the cable tree table to identify the wire colors for connecting the audio input and output.
**Audio in**: Line input level (not suitable for direct microphone signal).
Audio out: Line output level (not suitable for direct speaker connection).
Wiring: Shielded audio connection cable is advised.

5.4   Mount the camera module

1. Route the cable tree from the camera around the rear of the camera module and secure all cables.
2. For surface mounted units, place the surface mount ring over the mounting base.
    –   With a side connection, remove the tab at the side entrance; with a rear connection, leave it in place.
3. Use the fixing ring to secure the camera module to the mounting base:
    –   Align the screws in the fixing ring with the raised holes in the mounting base.
    –   Tighten the three screws with the supplied screwdriver bit (maximum torque 1 N-m).
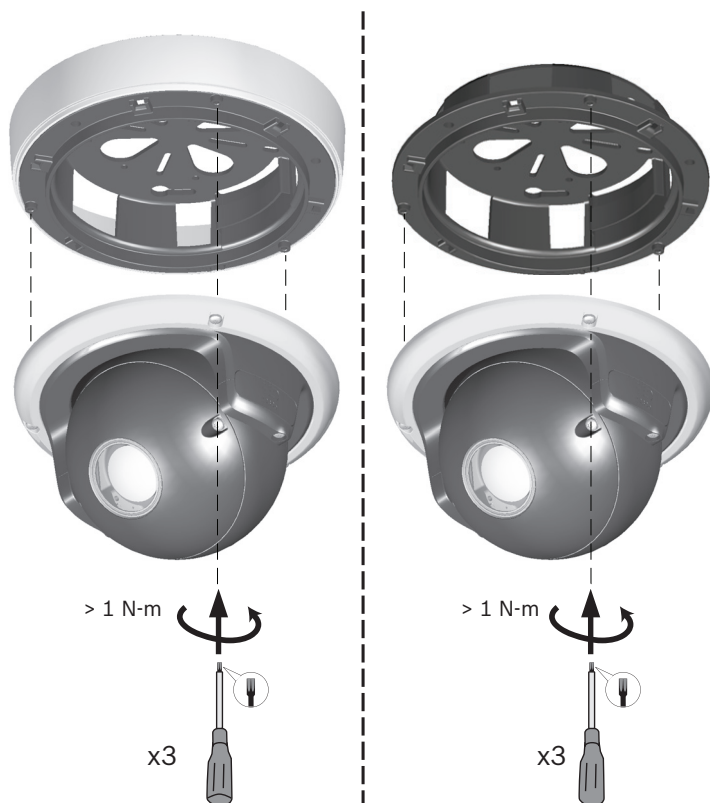
5.5   Opening the camera module

1.   Using the supplied screwdriver bit, loosen the two screws securing the camera window section of the camera module.

2.   Carefully, allow the camera window section to hang loose on the earth wire.
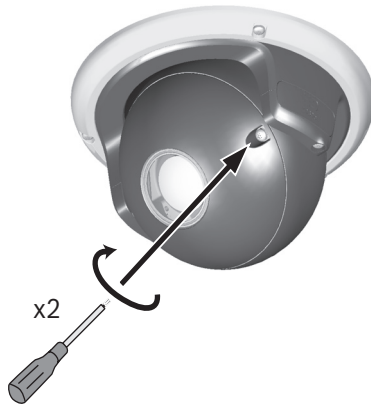
5.6   Controls
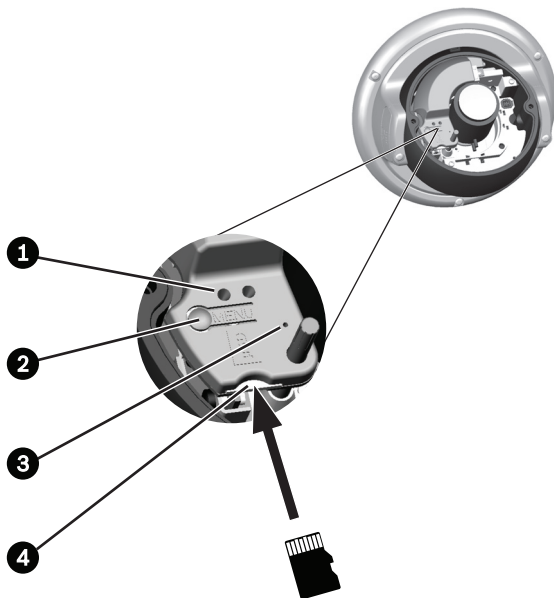
1.	Indication LEDs	The bi-colored LED indicates a failure (red), normal operation (green) or an established connection (green flashing). It can be disabled in the installer menu.
2.	Menu button	The menu button is used to start the installation wizard.
3.	Reset button	Restores the default IP address or restores a previous version of the firmware if uploading a new version fails. With the power on, use a small pointed object to press and hold the reset button for more than 10 seconds to restore the factory defaults.
4.	MicroSD card slot	Insert a microSD card into the slot.

5.7   Camera set-up

To help set up the camera for installation:

1. Connect a monitor to the 2.5 mm jack using the optional monitor cable (S1460) which provides a CVBS signal (for installation purposes only).
2. Disconnect the internal network cable.
3. Connect an external network cable with power (PoE).
4. After power-up, wait a little (less than 20 seconds).
5. Press the menu button. This stops the IP video stream and enables the video analog output.
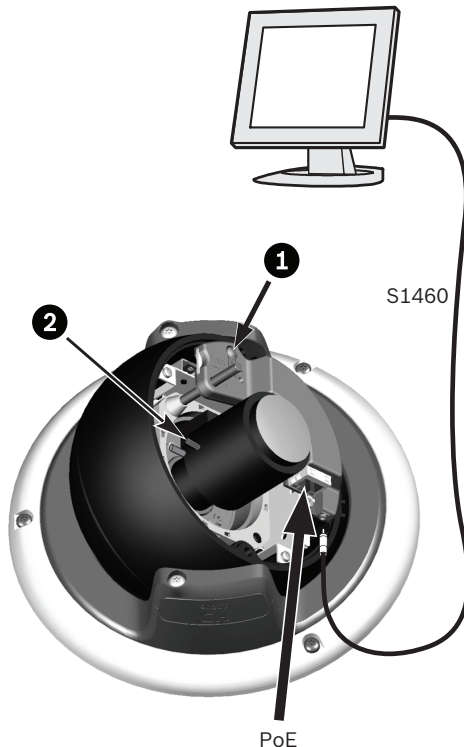
1. Menu button
2. Zoom (focal length) and Focus controls
   (Position of these controls might differ depending on the lens type. To use the full extension of the focus range, use the lens slip ring or the auto back focus mechanism.)

5.8   Camera positioning

The camera module position can be adjusted along three axes.

⚠ **CAUTION!**
Do not expose the sensors to direct sunlight.

5.8.1   Pan

For horizontal adjustment (pan):

1.   Slightly loosen the three screws in the fixing ring with the supplied screwdriver bit.
2.   Rotate the camera module in the base. Do not rotate more than 180° in either direction.
3.   Tighten the three screws in the fixing ring with the supplied screwdriver bit.
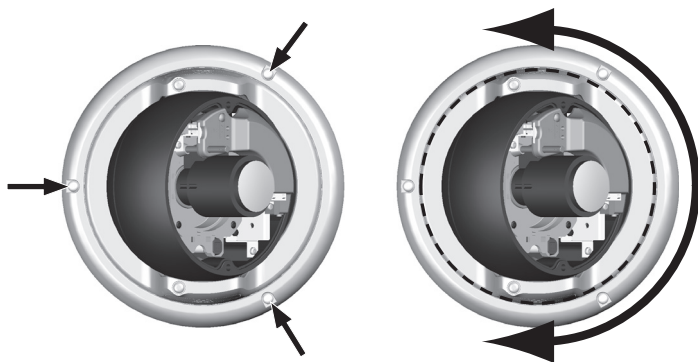
5.8.2 Tilt

For vertical adjustment (tilt):

1. Loosen the two screws in the camera module wings with the supplied screwdriver bit (1).
2. Swing the camera module between the wings. Do not rotate more than 100°.
3. Tighten the two screws in the camera module wings with the supplied screwdriver bit (1).
4. For extra secure locking, tighten (hand-tight) the two socket head screws in the side of the camera module wings with the supplied allen key (2).
5. Click the two wing covers into place.
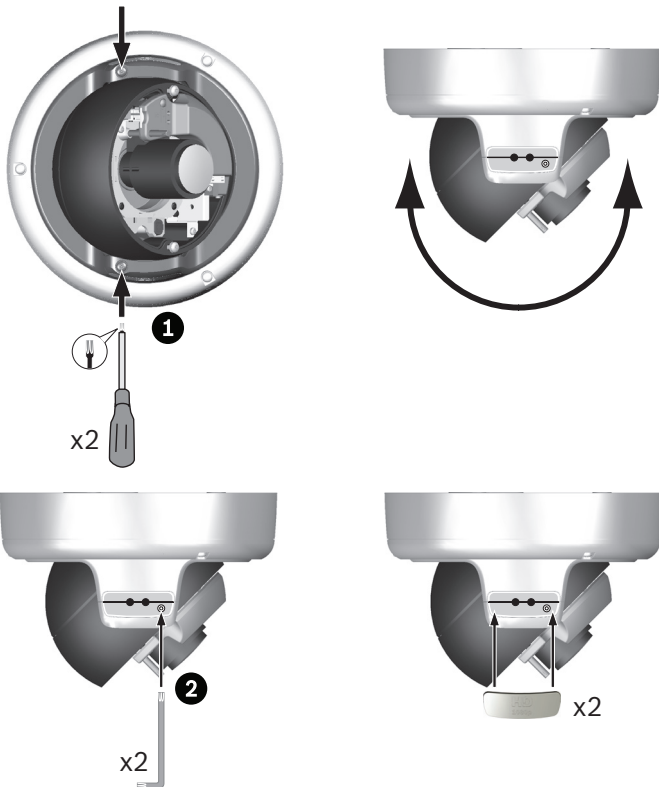
5.8.3 Twist

To obtain a horizontal horizon (for tilted ceilings or sidewall mounting), push and turn the green lever as necessary to align the picture shown on the monitor.

5.9 Using the install wizard

The **Menu** button on the control panel is used to access the camera install wizard. When there is a choice in the wizard, the options are selected by either a short press or a longer press of the button.

The wizard handles the following functions:

– Lens identification
– Zoom and focus adjustment conditions
– Image orientation
– Auto back focus

Run the wizard to adjust the focus. This optimizes picture sharpness in both bright and low-level lighting.

5.9.1 Adjustment procedure

If you have set up the camera and pressed the **Menu** button as described in *Section 5.7 Camera set-up, page 30* then you see the following on the monitor screen:

```
┌──────────────────────────────────────┐
│  ┌────────────────────────────────┐  │
│  │ Lens type                      │  │
│  └────────────────────────────────┘  │
│                                       │
│       ┌──────────────────────┐        │
│       │ MBF feedback         │        │
│       └──────────────────────┘        │
│  ┌──────────┐ ┌──────────┐ ┌────────┐ │
│  │ Auto MBF │ │ 180°     │ │MBF info│ │
│  └──────────┘ └──────────┘ └────────┘ │
└──────────────────────────────────────┘
```
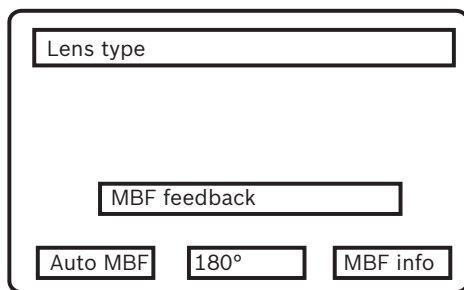
– The lens type is identified and shown on the screen.
– The iris is opened to its maximum value.

1. Manually adjust the focal length (zoom) on the lens to obtain the required field of view.
2. Manually adjust the focus on the lens to obtain the sharpest image possible.
3. To rotate the image 180°, press and hold the **Menu** button until the image flips.

4. Briefly press the **Menu** button to start the automatic motorized back focus (Auto MBF) adjustment.
    –   You will hear the motorised automatic back focus process running.
    –   The progress is shown on the monitor.
5. If the camera is not correctly focussed, press the **Menu** button for a longer time to restart the wizard.
6. If the camera is correctly focussed, briefly press the **Menu** button to save the results.
    –   The back focus position is stored.
    –   The iris is set to its original value.
    –   The video service output is disabled.

5.10   Closing the unit

When the camera position is set and all adjustments have been made, close the unit.
1. Disconnect the temporary external network cable.
2. Reconnect the internal network cable.
3. Place the camera window section on the camera module and ensure that:
    –   the connecting wires are not trapped or disconnected,
    –   the rubber gasket fits snugly.
4. Using the supplied screwdriver bit, secure the camera window section to the camera module by tightening the two screws (maximum torque 3.5 N-m).

6 Camera configuration

The camera normally provides an optimal picture without the need for further adjustments. Configuration of the camera is carried out via the network using a web browser.

6.1 Day/Night switching

The camera is equipped with a motorized IR filter. The mechanical IR filter is taken out of the optical path in low-light applications.
The IR filter is controlled either:
– via an alarm input, or
– automatically, based on the observed light levels.

If **Auto** switching mode is selected, the camera automatically switches the filter depending on the observed light level. The switching level is programmable.

Note:
When the auto mode is selected and the switching level is set to -15, certain borderline scene lighting conditions can cause the camera to switch back and forth between day and night modes. Set a different switching level to avoid this.

7   Browser connection

A computer with Microsoft Internet Explorer can be used to receive live images from the camera, control the camera, and replay stored sequences. The camera is configured over the network using the browser.

The configuration options using the menu system of the camera itself are limited to setting up the lens and network.

Note:
The camera can also be configured using the supplied Bosch Video Client or the Bosch Video Management System.

7.1   Protected network

If a RADIUS server is used for network access control (802.1x authentication), the camera must be configured first. To configure the camera for a Radius network, connect it directly to a PC via a crossed network cable and configure the two parameters, **Identity** and **Password**. Only after these have been configured can communication with the camera via the network occur.

8 Troubleshooting

8.1 Function test

The camera offers a variety of configuration options. Therefore, check that it works properly after installation and configuration. This is the only way to ensure that the camera will function as intended in the event of an alarm.

Your check should include the following functions:

– Can you connect to the camera remotely?
– Does the camera transmit all the data required?
– Does the camera respond as desired to alarm events?
– Is it possible to control peripheral devices, if necessary?

8.2   Resolving problems

The following table is intended to help identify the causes of malfunctions and correct them where possible.

Malfunction	Possible causes	Solution
No image transmission to remote location.	Defective camera.	Connect a local monitor to the camera and check the camera function.
	Faulty cable connections.	Check all cables, plugs, contacts and connections.
	Incorrect encoder stream property set for connection to hardware decoder.	Select the H.264 MP SD option on the **Encoder Streams** configuration page.
No connection established, no image transmission.	The unit's configuration.	Check all configuration parameters.
	Faulty installation.	Check all cables, plugs, contacts and connections.
	Wrong IP address.	Check the IP addresses (terminal program).
	Faulty data transmission within the LAN.	Check the data transmission with ping.
	The maximum number of connections has been reached.	Wait until there is a free connection and call the transmitter again.

Malfunction	Possible causes	Solution
No audio transmission to remote station.	Hardware fault.	Check that all connected audio units are operating correctly.
	Faulty cable connections.	Check all cables, plugs, contacts and connections.
	Incorrect configuration.	Check audio parameters on the **Audio** configuration and **LIVEPAGE Functions** pages.
	The audio voice connection is already in use by another receiver.	Wait until the connection is free and then call the sender again.
The unit does not report an alarm.	Alarm source is not selected.	Select possible alarm sources on the Alarm sources configuration page.
	No alarm response specified.	Specify the desired alarm response on the Alarm connections configuration page; if necessary change the IP address.
Control of cameras or other units is not possible.	The cable connection between the serial interface and the connected unit is not correct.	Check all cable connections and ensure all plugs are properly fitted.
	The interface parameters do not match those of the other unit connected.	Make sure that the settings of all units involved are compatible.

Malfunction	Possible causes	Solution
The unit is not operational after a firmware upload.	Power failure during programming by firmware file.	Have the unit checked by Customer Service and replace if necessary.
	Incorrect firmware file.	Enter the IP address of the unit followed by **/ main.htm** in your Web browser and repeat the upload.
Placeholder with a red cross instead of the ActiveX components.	JVM not installed on your computer or not activated.	Install Sun JVM from the product optical disk.
Web browser contains empty fields.	Active proxy server in network.	Create a rule in the local computer's proxy settings to exclude local IP addresses.
The **POWER** LED is red.	Firmware upload failed.	Repeat firmware upload.

8.3   Customer service

If a fault cannot be resolved, please contact your supplier or system integrator, or go directly to Bosch Security Systems Customer Service.

The version numbers of the internal firmware can be viewed on a special page. Please note this information before contacting Customer Service.

1.   In the address bar of your browser, after the unit IP address, enter: `/version`
     for example: `192.168.0.80/version`
2.   Write down the information or print out the page.

9 Maintenance

9.1 Testing the network connection

The ping command can be used to check the connection between two IP addresses. This allows testing whether a device is active in the network.

1. Open the DOS command prompt.
2. Type ping followed by the IP address of the device.

If the device is found, the response appears as " Reply from ... ", followed by the number of bytes sent and the transmission time in milliseconds. Otherwise, the device cannot be accessed via the network. This might be because:

– The device is not properly connected to the network. Check the cable connections in this case.
– The device is not correctly integrated into the network. Check the IP address, subnet mask, and gateway address.

9.2 Communication with Terminal Program

Data Terminal

If a camera cannot be found in the network or the connection to the network is interrupted, you can connect a data terminal to the camera for initial setup and for setting important parameters. The data terminal consists of a computer with a terminal program.
You require a serial transmission cable to connect to the computer.

The communications accessory included with Windows can be used as the terminal program.

1. Disconnect the camera from the Ethernet network before working with the terminal program.
2. Connect the serial interface of the camera using any available serial interface on the computer.

Configuring the Terminal

Before the terminal program can communicate with the camera, the transmission parameters must be matched. Make the following settings for the terminal program:

– 19,200 bps
– 8 data bits
– No parity check
– 1 stop bit
– No protocol

Command Inputs

After the connection has been established, you must log on to the camera to access the main menu. Other submenus and functions can be accessed using the on-screen commands.

1. If necessary, turn off the local echo so that entered values are not repeated on the display.
2. Enter one command at a time.
3. When you have entered a value, such as the IP address, check the characters you have entered before pressing Enter to transfer the values to the camera.

Assigning an IP Address

Before you can operate a camera in your network you must first assign it an IP address that is valid for your network.

The following default address is preset at the factory:

192.168.0.1

1. Start a terminal program such as HyperTerminal.
2. Enter the user name **service**. The terminal program displays the main menu.
3. Enter command **1** to open the **IP** menu.
4. Enter **1** again. The terminal program displays the current IP address and prompts you to enter a new IP address.
5. Enter the desired IP address and press Enter. The terminal program displays the new IP address.
6. Use the displayed commands for any additional settings you require.

Note:
You must reboot to activate the new IP address, a new subnet mask or a gateway IP address.

Reboot
Briefly interrupt the power supply to the camera for a reboot (disconnect the power supply unit from the mains supply and switch on again after a few seconds).

Additional Parameters
You can use the terminal program to check other basic parameters and modify them where necessary. Use the on-screen commands in the various submenus to do this.

9.3 Repairs

CAUTION!
Never open the casing of the unit. The unit does not contain any user serviceable parts. Ensure that all maintenance or repair work is performed only by qualified personnel (electrical engineering or network technology specialists). In case of doubt, contact your dealer's technical service center.

9.3.1 Transfer and disposal
The camera should only be passed on together with this installation guide. The unit contains environmentally hazardous materials that must be disposed of according to law. Defective or superfluous devices and parts should be disposed of professionally or taken to your local collection point for hazardous materials.

10 Technical Data

10.1 Specifications

Imager	1/2.7-inch CMOS HD sensor
Rated supply voltage	24 VAC ±10% 50/60 Hz 12 VDC ±10% Power-over-Ethernet 48 VDC nominal
Current consumption	0.8 A | 1 A IVA (12 VDC) 0.7 A | 0.8 A IVA (24 VAC) 0.25 A | 0.3 A IVA (PoE 48 VDC)
Minimum illumination	0.5 lx color, 30 IRE 0.08 lx Mono, 30 IRE
Day/Night	Color, Mono (IR contrast), Auto
Dynamic range	69 dB
SNR	> 50 dB
SmartBLC	On/Off
AGC	AGC On (0-35 dB) or Off
White Balance	ATW, AWB hold and manual (2500 to 10000K)
Color saturation	Adjustable from monochrome (0%) to 133% color
Shutter	Auto (1/60 [1/50] to 1/10000) selectable Auto (1/60 [1/50] to 1/150000) automatic, Automatic Electronic Shutter (AES) with default
Sens Up	Adjustable from Off to 10x
AutoBlack	Automatic continuous
DNR	Automatic noise filtering
Sharpness	Sharpness enhancement
Privacy Masking	Four independent areas, fully programmable
Video Motion Analysis	Motion+, IVA option
Lens type	DC iris auto detect
Controls	Via web browser or Configuration Manager
Control feedback	Actual shutter, Actual gain

LAN interface	STP, Ethernet 10/100 Base-T, auto-sensing, half/full duplex, RJ45
Video encoding protocols	H.264 (ISO/IEC 14496-10), M-JPEG
Image resolutions	1920 × 1080 pixels
Group of pictures	IP, IBP, IBBP
Network protocols	HTTP, HTTPs, SSL, TCP, UDP, ICMP,RTSP, RTP, Telnet, IGMPv2/v3, SMTP,SNTP, FTP, DHCP client, ARP, DNS,DDNS, NTP, SNMP, UPnP, 802.1X, iSCSI
Encryption	TLS 1.0, SSL, AES (optional)
Alarm input	Non-isolated closing contact TTL logic, +5V nominal, +40 VDC max, DC coupled with 22 kOhm pull-up to +3.3 VDC
Relay output	Maximum voltage 30 VAC or +40 VDC. Maximum 0.5 A continuous, 10 VA
Audio input	1 Vrms, impedance 12 kOhm
Audio output	1 Vrms, impedance 1.5 kOhm
Audio standards	G.711, 8kHz sampling rate L16, 16kHz sampling rate
Audio signal-to-noise ratio	> 50 dB
Data port	RS-232/422/485
Memory card slot	Supports up to 1.2 TB microSD cards
Weight	2200 g (4.85 lb)
Environment	IP66, NEMA Type 4X
Operating temperature	-50 °C to +55 °C (-58 °F to +131 °F)
Operating temperature (IVA)	-50 °C to +50 °C (-58 °F to +122 °F)

10.1.1   Dimensions

140 (0.55)

151 (5.95)

Ø208 (8.2)

116 (4.57)

35 (1.38)

mm (in)   Ø150 (5.9)
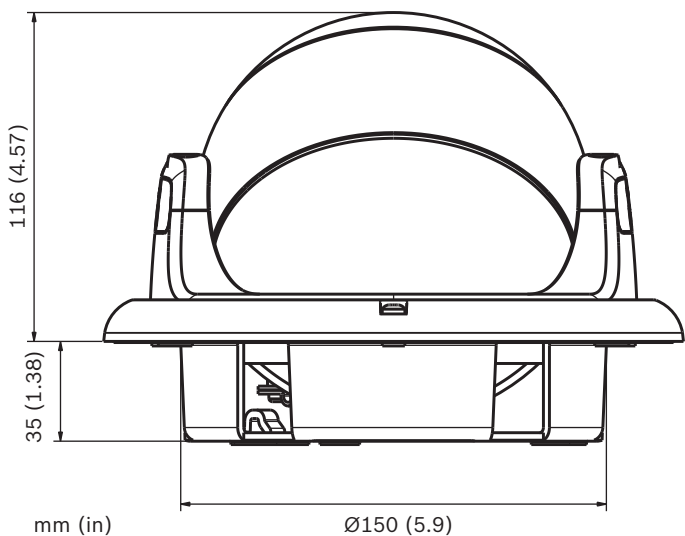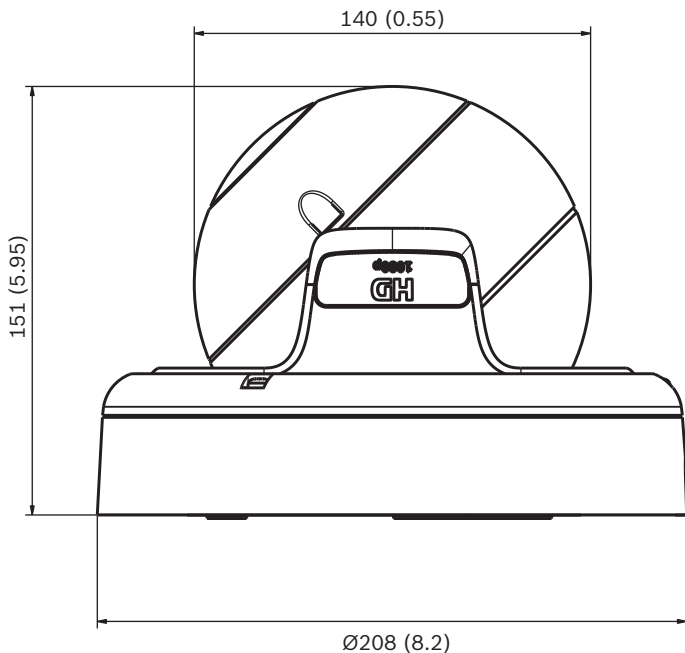
Bosch Security Systems

www.boschsecurity.com
© Bosch Security Systems, 2011